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09/890869

August 7, 2001

BOX PCT

Commissioner for Patents
Washington, D.C. 20231

PCT/NZ00/00012
-filed February 10, 2000

Re: Application of Nicholas Bernard BODY, Felix Anton Harold COLLINS and Anthony David SMITH
IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR MONITORING SYSTEMS
Assignee: CARDAX INT'L LIMITED
Our Ref: Q65784

Dear Sir:

The following documents and fees are submitted herewith in connection with the above application for the purpose of entering the National stage under 35 U.S.C. § 371 and in accordance with Chapter II of the Patent Cooperation Treaty:

a Preliminary Amendment

The Declaration and Power of Attorney and Assignment will be submitted at a later date.

It is assumed that copies of the International Application, the International Search Report, the International Preliminary Examination Report, and any Articles 19 and 34 amendments as required by § 371(c) will be supplied directly by the International Bureau, but if further copies are needed, the undersigned can easily provide them upon request.

Applicant claims benefit of small entity status in accordance with 37 CFR § 1.27.

The Government filing fee after submission of the Preliminary Amendment is calculated as follows (**Small Entity fees apply**):

Priority is claimed from February 11, 1999, based on New Zealand Application No. 334139.

Respectfully submitted,

Robert J. Seas, Jr.
Registration No. 21,092

RJS/ob

09/890869

003 Rec'd PTO 07 AUG 2001

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Nicholas Bernard BODY, et al.

Appln. No.: PCT/NZ00/00012

Group Art Unit: NOT YET ASSIGNED

Confirmation No.: Not Yet Assigned

Examiner: NOT YET ASSIGNED

Filed: August 07, 2001

For: IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR MONITORING SYSTEMS

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please enter the following amended claims:

3. A method as claimed in claim 1 wherein each sector can be enabled simultaneously or independently with the other sectors.
4. A method as claimed in claim 1 wherein each sector has assigned to it at least one event definition parameter.
9. A monitoring system operable by the method claimed in claim 1.
10. Hardware containing a set of instructions for operation of a monitoring system according to the method as claimed in claim 1.
11. A camera operable by the method as claimed in claim 1.

Please cancel claims 12 - 15.

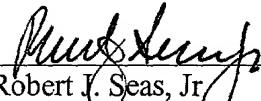
AMENDMENT

Attorney Docket No.: Q65784

REMARKS

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,


Robert J. Seas, Jr.
Registration No. 21,092

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RJS:rwl
Q65784
Date: August 7, 2001

09/890869
JC03 Rec'd PCT/CTC 07 AUG 2001

AMENDMENT
Attorney Docket No. Q65784

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

3. A method as claimed in ~~either~~ claim 1 ~~or~~ ~~claim~~ 2 wherein each sector can be enabled simultaneously or independently with the other sectors.
4. A method as claimed in ~~any one of~~ claims 1 ~~to~~ 3 wherein each sector has assigned to it at least one event definition parameter.
9. A monitoring system operable by the method claimed in ~~any one of~~ the claims 1 ~~to~~ 8.
10. Hardware containing a set of instructions for operation of a monitoring system according to the method as claimed in ~~any one of~~ claims 1 ~~to~~ 8.
11. A camera operable by the method as claimed in ~~any one of~~ claims 1 ~~to~~ 8.

Please cancel claims 12-15.

SEARCHED 6/26/2002
INDEXED 6/26/2002
SERIALIZED 6/26/2002
FILED 6/26/2002

IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR
MONITORING SYSTEMS

This invention relates to improvements in or relating to control and/or monitoring systems.

5 Reference throughout the specification should be made to the present invention in relation to security systems which are in fact control and/or monitoring systems.

BACKGROUND ART

An increasing number of security systems are being installed world-wide. Further, existing security systems are continually being upgraded as technology becomes 10 smarter, more monitoring/control devices are available, and the desire for increased security increases.

One security device in which there has been considerable development is the video camera.

Previously, video cameras were used as passive means to monitor security 15 situations. That is, the security video camera would capture images in its field of view and relay these to an operator on a security system who may be viewing a number of monitors or a single monitor showing views from multiple cameras.

The video camera has evolved further to have the ability to detect motion which can be defined as an alarm situation requiring some action or notification from the 20 security system.

Some cameras have the ability to mask out sections of an image from the motion detection. For example, in a field of view there may be considerable motion happening such as trees moving in the wind, curtains blowing or traffic passing by a window. Thus these cameras allow the areas of the image to have motion 5 associated with them which does not trigger an alarm situation. The rest of the image however may trigger alarm situations as normal.

The operator of the security system can choose which sections can be masked out, but generally these sections are predefined. Further, there are limitations in that if motion is detected in a certain section that is not masked out, there is only one 10 possible response to that motion, generally an alarm signal. So effectively the image has on and off areas assigned to raising an alarm if there is motion or not depending on which area the motion occurs.

It would be desirable if there could be provided a security system that provides a greater flexibility than previous systems.

15 It is object of the present invention to address the above problems, at least to provide the consumer with the useful choice.

Further objects of the present invention will now become apparent from the following description which is given by way of example only.

DISCLOSURE OF INVENTION

According to one aspect of the present invention there is provided a method of operating a monitoring system using an image capture device, the method characterised by the steps of

- 5 (a) defining a number of sectors of a field of view of the image capture device,
and
- (b) assigning independent monitoring and control parameters to each of the
sectors.

Further embodiments of the present invention include a monitoring system which
10 is operable by the method as described above, hardware containing a set of
instructions for operation of a monitoring system and a camera operable by the
method claimed above.

The monitoring system may be any suitable security system or other type of
monitoring system and it may in some embodiments be just a camera itself.

- 15 The image capture device again may be any suitable apparatus but for ease of
reference throughout this specification it shall be referred to as a camera. In
preferred embodiments, the image capture device is a digital video camera.

The field of view of the camera is the area that the camera sees when in its usual
position.

The sectors in the field of view can be in preferred embodiments of the present invention any size, shape or number. For ease of use, it is envisaged that in one embodiment of the present invention the shape of the sectors will be rectangular.

However, it is an aspect of the present invention that the sectors can be any size
5 and of variable positioning and variable length to width ratio. It is a feature of the preferred embodiments that the sectors can overlap if desired by the operator. While the number of sectors need not be limiting, the applicant believes that having the ability to define approximately ten sectors is adequate.

Thus, the sectors may be chosen in a position to cover certain areas such as for
10 example, curtains, windows, doorways, security panels, trees, moving traffic, passageways and any other areas of interest in which it is desired to have monitoring and control parameters which are independent of other sectors.

Preferably, the sectors are independent of each other and are enabled simultaneously.

15 There may be a number of different monitoring parameters within the security system that could be assigned to each sector. The monitoring parameters are preferably event detection parameters.

For example, one event detection parameter that is assigned is motion detection. The actual threshold of motion detection may vary for each sector. For example,
20 the threshold for motion detection may be high in sectors which cover background movement, such as blowing leaves, curtains and traffic. The threshold for motion

detection may be lower in sectors which normally have no movement, such as valuable museum artefacts.

There may be other monitoring parameters as well. For example, there may be a monitoring parameter which is purely visual which does not take note if there is 5 movement, but merely transmits the image to the operator of the security system. Another event detection parameter may not be movement, but may be a change of colour or light intensity. For example, a particular sector may be sensitive to the turning on or off of a light, for example, a security light.

As another example, the sector may be sensitive to lack of movement, for example 10 when monitoring people, babies or animals.

There may be a variety of control parameters that is possible to assign to a sector as well. A basic control parameter may merely be the relaying of the image received by the camera in a certain sector to the operator of the security system. Another control parameter would be the signalling of a silent alarm to the operator 15 of the security system or in some sectors may be other stages of alarm, such as an audible alarm and so forth.

Another control parameter may be the opening or closing of doors, windows or other security devices.

For example, a person may walk to a door corresponding to a sector in the field of 20 view of the camera. One of the monitoring parameters in that sector may be face recognition. The control parameter may be to open the door if the face is recognised as that of a person allowed access through the door.

Another control option may be to operate other peripheral devices attached to the security system. For example, there may be provided an intercom attached to the security system which plays a message once a person enters a certain sector. Another control parameter may be motion tracking, turning the camera to follow 5 movement that went originally across one of the sectors.

In some embodiments of the present invention, the operator of the security system may be able to pre-program a number of sectors according to the angle at which the camera is oriented. For example, the camera may have a usual orientation with standard images coming into its field of view. However, if the camera is used to 10 track motion, and the angle of the camera is altered, another set of sectors may be required with the appropriate monitoring and control parameters for the new field of view.

In preferred embodiments, each sector can be disabled/enabled individually by either a pre-programmed schedule or by setting (arming) or unsetting (disarming) 15 the security zones.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will now be described for example only with reference to the accompanying drawings in which:

Figure 1 is the diagrammatic representation of one embodiment of the 20 present invention.

BEST MODES FOR CARRYING OUT THE INVENTION

Figure 1 illustrates a possible field of view generally indicated by arrow 1, seen by a digital video camera (not shown).

In the field of view (1) there are a number of different items including a curtain (2)
5 beside a window (3), a door (4) and an artefact generally indicated by arrow 5, and a passageway (6).

Each of the objects (2-6) have different sectors associated with them. These sectors are indicated by rectangles outlined in dash, with a dash-lined border. What should also be appreciated is that the area (7) of the field of view (1) which
10 does not have a dashed rectangular border can also be viewed as a separate sector.

Each of the sectors (2-7) are independent of each other and enabled simultaneously. These all have different event definition and control parameters associated with them.

For example, sector (2) has a high threshold of motion detection associated with it
15 as it is quite conceivable that the curtain may move in the wind. Sector (3) has a lower detection of movement associated with it so that the monitor is sensitive to movement of the window itself but less sensitive to movement outside of the window. If this sector (3) detects a gross motion, then the associated control parameter may be to signal an alert to the operator of the security system.

20 Sector (4) has no threshold of motion detection associated with it as any movement near the door may trigger a recognition sequence and possibly the control parameter may be to open the door if there is satisfactory recognition.

Any movement in the vicinity of sector (5) which is the artefact, may trigger an alarm situation.

It should be noted that sector (6) overlaps with sector (5) which is one of the useful embodiments of the present invention. While the sectors can operate 5 independently, there may also be configured in the software of the present invention recognition of inter-relationships between sectors. For example, movement in sector (5) will not trigger an alarm situation if there has been corresponding movement in sector (6) – there may only be an alert situation triggered then.

10 Sector (7) is significant in that it is the portion that is not defined by dashed rectangles. This sector may have no monitoring or control parameters or may have similar parameters assigned to it as in the other sectors.

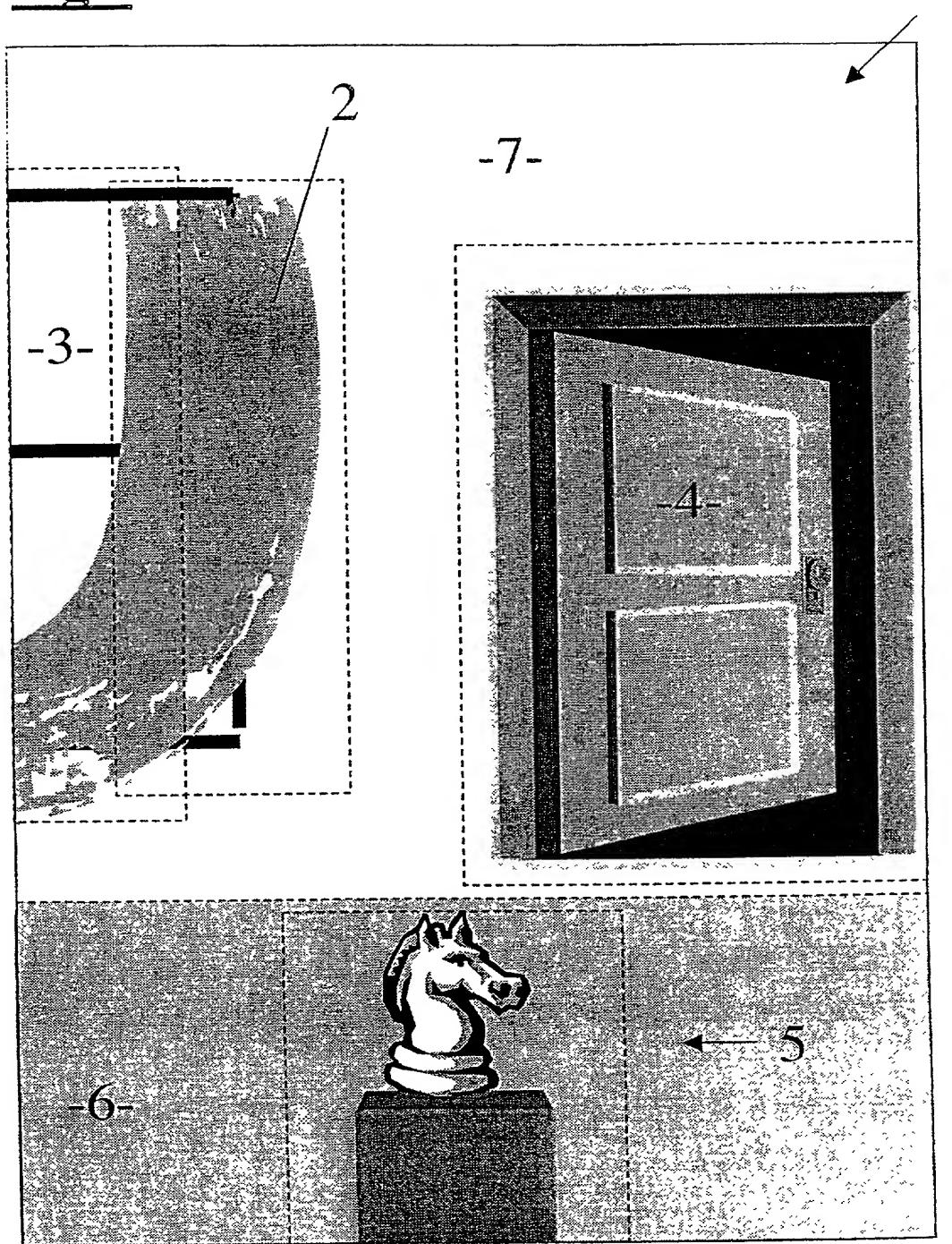
Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions may be made thereto 15 without departing from the scope thereof as defined in the appended claims.

THE CLAIMS DEFINING THE INVENTION ARE:

1. A method of operating a monitoring system using an image capture device, the method characterised by the steps of
 - a) defining a number of sectors on the field of view of the image capture device, and
 - b) assigning independent monitoring and control parameters to each of the sectors.
2. A method as claimed in claim 1 wherein the positioning and size of the sectors are selectable by an operator of the system.
3. A method as claimed in either claim 1 or claim 2 wherein each sector can be enabled simultaneously with the other sectors.
4. A method as claimed in any one of claims 1 to 3 wherein each sector has assigned to it at least one event definition parameter.
5. A method as claimed in claim 4 wherein at least one of the event definitions is motion detection.
6. A method as claimed in either claim 4 or claim 5 wherein one of the parameters is a control function linked to an event definition.
7. A method as claimed in claim 6 wherein the control function is the storage of data relating to an event.

8. A method as claimed in claim 6 wherein the control function is motion tracking by the image capture device.
9. A method as claimed in claim 6 wherein the control function is the triggering of an alarm.
10. A monitoring system operable by the method claimed in any one of the claims 1 to 9.
11. Hardware containing a set of instructions for operation of a monitoring system according to the method as claimed in any one of claims 1 to 9.
12. A camera operable by the method as claimed in any one of claims 1 to 9.
13. A method substantially as herein described with reference to and as illustrated by the accompanying drawings.
14. A monitoring system substantially as herein described with reference to and as illustrated by the accompanying drawings.
15. Hardware substantially as herein described with reference to and as illustrated by the accompanying drawings.
16. A camera substantially as herein described with reference to and as illustrated by the accompanying drawings.

45242889-66666666660

Fig 1

THE CLAIMS DEFINING THE INVENTION ARE:

1. A method of operating a monitoring system using an image capture device, the method characterised by the steps of
 - a) defining a number of sectors on the field of view of the image capture device, and
 - b) assigning independent monitoring and control parameters to each of the sectors, and
 - c) signalling different and independent outputs for the sectors
2. A method as claimed in claim 1 wherein the positioning and size of the sectors are variable and selectable by an operator of the system.
3. A method as claimed in either claim 1 or claim 2 wherein each sector can be enabled simultaneously or independently with the other sectors.
4. A method as claimed in any one of claims 1 to 3 wherein each sector has assigned to it at least one event definition parameter.
5. A method as claimed in claim 4 wherein at least one of the event definitions is motion detection.
6. A method as claimed in claim 5 wherein an output is the storage of data relating to an event.
7. A method as claimed in claim 5 wherein an output is motion tracking by the image capture device.
8. A method as claimed in claim 5 wherein an output is the triggering of an alarm.
9. A monitoring system operable by the method claimed in any one of the claims 1 to 8.

10. Hardware containing a set of instructions for operation of a monitoring system according to the method as claimed in any one of claims 1 to 8.
11. A camera operable by the method as claimed in any one of claims 1 to 8.
12. A method substantially as herein described with reference to and as illustrated by the accompanying drawings.
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14. Hardware substantially as herein described with reference to and as illustrated by the accompanying drawings.
15. A camera substantially as herein described with reference to and as illustrated by the accompanying drawings.

09/890869

IMPROVEMENTS IN OR RELATING TO CONTROL AND/ORMONITORING SYSTEMS

This invention relates to improvements in or relating to control and/or monitoring systems.

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The video camera has evolved further to have the ability to detect motion which can be defined as an alarm situation requiring some action or notification from the 20 security system.

Some cameras have the ability to mask out sections of an image from the motion detection. For example, in a field of view there may be considerable motion happening such as trees moving in the wind, curtains blowing or traffic passing by a window. Thus these cameras allow the areas of the image to have motion 5 associated with them which does not trigger an alarm situation. The rest of the image however may trigger alarm situations as normal.

The operator of the security system can choose which sections can be masked out, but generally these sections are predefined. Further, there are limitations in that if motion is detected in a certain section that is not masked out, there is only one 10 possible response to that motion, generally an alarm signal. So effectively the image has on and off areas assigned to raising an alarm if there is motion or not depending on which area the motion occurs.

It would be desirable if there could be provided a security system that provides a greater flexibility than previous systems.

15 It is object of the present invention to address the above problems, at least to provide the consumer with the useful choice.

Further objects of the present invention will now become apparent from the following description which is given by way of example only.

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According to one aspect of the present invention there is provided a method of operating a monitoring system using an image capture device, the method characterised by the steps of

- 5 (a) defining a number of sectors of a field of view of the image capture device,
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sectors.

Further embodiments of the present invention include a monitoring system which
10 is operable by the method as described above, hardware containing a set of
instructions for operation of a monitoring system and a camera operable by the
method claimed above.

The monitoring system may be any suitable security system or other type of
monitoring system and it may in some embodiments be just a camera itself.

15 The image capture device again may be any suitable apparatus but for ease of
reference throughout this specification it shall be referred to as a camera. In
preferred embodiments, the image capture device is a digital video camera.

The field of view of the camera is the area that the camera sees when in its usual
position.

The sectors in the field of view can be in preferred embodiments of the present invention any size, shape or number. For ease of use, it is envisaged that in one embodiment of the present invention the shape of the sectors will be rectangular.

However, it is an aspect of the present invention that the sectors can be any size
5 and of variable positioning and variable length to width ratio. It is a feature of the preferred embodiments that the sectors can overlap if desired by the operator. While the number of sectors need not be limiting, the applicant believes that having the ability to define approximately ten sectors is adequate.

Thus, the sectors may be chosen in a position to cover certain areas such as for
10 example, curtains, windows, doorways, security panels, trees, moving traffic, passageways and any other areas of interest in which it is desired to have monitoring and control parameters which are independent of other sectors.

Preferably, the sectors are independent of each other and are enabled simultaneously.

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For example, a person may walk to a door corresponding to a sector in the field of 20 view of the camera. One of the monitoring parameters in that sector may be face recognition. The control parameter may be to open the door if the face is recognised as that of a person allowed access through the door.

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In some embodiments of the present invention, the operator of the security system may be able to pre-program a number of sectors according to the angle at which the camera is oriented. For example, the camera may have a usual orientation with standard images coming into its field of view. However, if the camera is used to track motion, and the angle of the camera is altered, another set of sectors may be required with the appropriate monitoring and control parameters for the new field of view.

In preferred embodiments, each sector can be disabled/enabled individually by either a pre-programmed schedule or by setting (arming) or unsetting (disarming) the security zones.

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The present invention will now be described for example only with reference to the accompanying drawings in which:

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Any movement in the vicinity of sector (5) which is the artefact, may trigger an alarm situation.

It should be noted that sector (6) overlaps with sector (5) which is one of the useful embodiments of the present invention. While the sectors can operate 5 independently, there may also be configured in the software of the present invention recognition of inter-relationships between sectors. For example, movement in sector (5) will not trigger an alarm situation if there has been corresponding movement in sector (6) – there may only be an alert situation triggered then.

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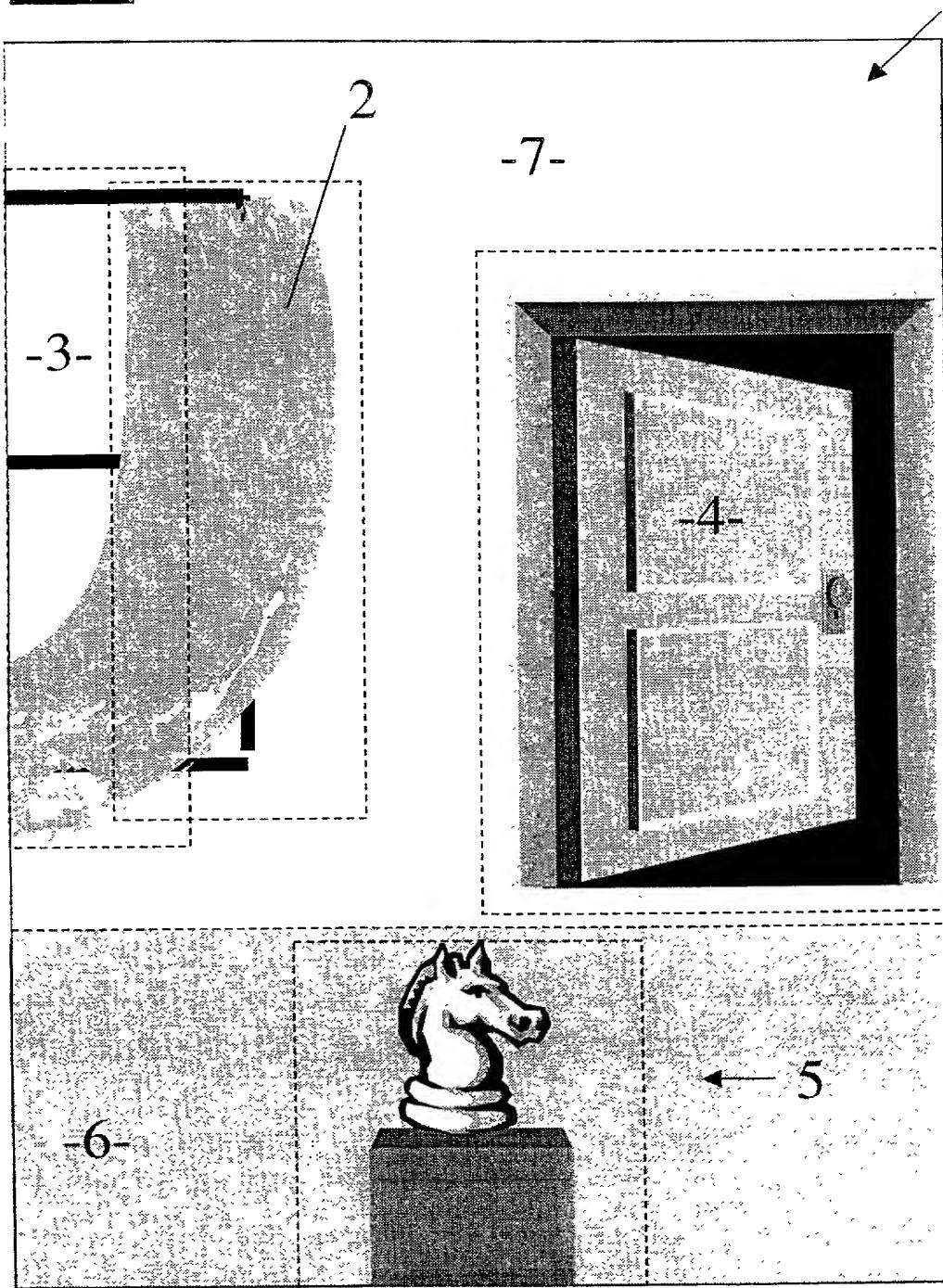
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2. A method as claimed in claim 1 wherein the positioning and size of the sectors are selectable by an operator of the system.
3. A method as claimed in either claim 1 or claim 2 wherein each sector can be enabled simultaneously with the other sectors.
4. A method as claimed in any one of claims 1 to 3 wherein each sector has assigned to it at least one event definition parameter.
5. A method as claimed in claim 4 wherein at least one of the event definitions is motion detection.
6. A method as claimed in either claim 4 or claim 5 wherein one of the parameters is a control function linked to an event definition.
7. A method as claimed in claim 6 wherein the control function is the storage of data relating to an event.

8. A method as claimed in claim 6 wherein the control function is motion tracking by the image capture device.
9. A method as claimed in claim 6 wherein the control function is the triggering of an alarm.
10. A monitoring system operable by the method claimed in any one of the claims 1 to 9.
11. Hardware containing a set of instructions for operation of a monitoring system according to the method as claimed in any one of claims 1 to 9.
12. A camera operable by the method as claimed in any one of claims 1 to 9.
13. A method substantially as herein described with reference to and as illustrated by the accompanying drawings.
14. A monitoring system substantially as herein described with reference to and as illustrated by the accompanying drawings.
15. Hardware substantially as herein described with reference to and as illustrated by the accompanying drawings.
16. A camera substantially as herein described with reference to and as illustrated by the accompanying drawings.

Fig 1



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Anthony David Smith, et al.

Appln. No.: 09/890,869

Group Art Unit: NOT YET ASSIGNED

Confirmation No.: Not Yet Assigned

Examiner: NOT YET ASSIGNED

Filed: August 07, 2001

For: IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR MONITORING SYSTEMS

SUBMISSION OF EXECUTED DECLARATION

ATTN: BOX PCT

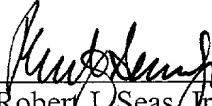
Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the "Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US)," mailed September 5, 2001 for the above application, Applicant respectfully submits herewith the Declaration for the above identified application properly executed by the inventors. Also enclosed please find an executed Assignment and PTO Form 1595.

Checks for the statutory fee of \$65.00 and Assignment recordation fee of \$40.00 are attached. Please also charge any underpayment or credit any overpayment to Deposit Account No. 19-4880. A duplicate copy of this paper is attached.

Respectfully submitted,


Robert J. Seas, Jr.
Registration No. 21,092

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MACPEAK & SEAS, PLLC
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Washington, D.C. 20037-3213

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Facsimile: (202) 293-7860

RJS:rwl

Date: September 27, 2001

UNITED STATES

PATENT APPLICATION
DECLARATION AND POWER OF ATTORNEY - ORIGINAL APPLICATION

As a below named Inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name: I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named below) of the invention entitled

(1) TITLE OF
INVENTION

Improvements In or Relating to Control and/or Monitoring Systems

the specification of which

(2) CHECK
APPROPRIATE
BOX

(2) is attached hereto.

was filed on _____ as Application No. _____

and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above indentified specification, including the claims, as amended by any amendment referred to above.

I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application under 37 CFR 1.56(a); the invention has not been patented or made the subject of a inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application; and

as to applications for patents or inventor's certificate on the invention filed in any country foreign to the United States prior to this application by me or my legal representatives or assigns,

(3) no such application have been filed, or

such applications have been filed as follows:

4 (4) COMPLETE
DATA
INDICATED IF
APPLICABLE

Earliest foreign application(s), if any, filed within 12 months or more prior to this application:

Country	Application Number	Date of Filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed under 35 USC 119
New Zealand	334139	11/02/99		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

All foreign applications, if any, filed more than 12 months prior to this application:

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge duty to disclose material information as defined in Title 37, Code of Federation Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(5) COMPLETE
DATA
INDICATED IF
APPLICABLE

(5) _____
(Application Ser. No) (Filing date) (Status: patented, pending, abandoned)

(5) _____
(Application Ser. No) (Filing date) (Status: patented, pending, abandoned)



Power of Attorney: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trade Mark Office connected therewith.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardise the validity of the application or any patent issued thereon.

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